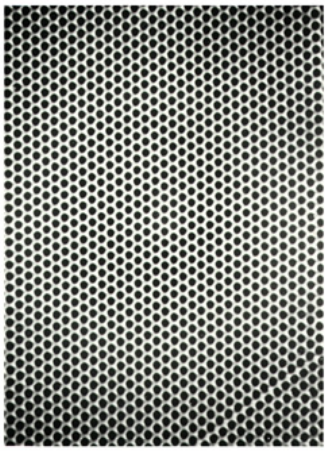
NAVAL RESEARCH LABORATORY

TECHNOLOGY LICENSING OPPORTUNITY

NANOCHANNEL GLASS MATERIALS



Nanochannel glass materials are complex glass structures containing large numbers of parallel hollow channels. In its simplest form, the hollow channels are arranged in geometric arrays with packing densities as great as 1011 channels/cm2. Channel dimensions are controllable from microns to tens of nanometers, while retaining excellent channel uniformity. Exact replicas of the channel glass can be made from a variety of materials. This is a low cost method for creating identical structures with nanoscale features in large numbers.

References

"Materials Characterization and Nanofabrication Methods - Nanochannel Glass Materials," *Advances in Nanophotonics II, AIP Conference Proceedings*, 959 (2007), 59-71.

"Nanochannel Glass Replica Membranes," *Science*, 270 (1996), 68-70.

"Nanochannel Glass Arrays," *Science*, 258 (1992), 783-785.

Available for License: US Patent Nos. 5,306,661; 5,332,681; 5,976,444; 6,087,274; 6,376,096; 6,483,640; and 6,599,616. Other applications have been filed.

Advantages/Features

High density of uniform channels with diameters from 15 microns to 15 nanometers

Rigid structures with serviceable temperatures to at least 300deg C, with potential up to 1000deg C

Optically transparent photonic structures with high degree of reproducibility

Applications

Filters for particle sizing for monodispersion of particle sizes

Material for chromatographic columns

Unidirectional conductors

Nonlinear optical devices

Masks for semiconductor development, including ion implantation, optical lithography, and reactive ion etching.

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